

What is claimed is:

1. A slider of a thin-film magnetic head comprising:  
a slider main body having: a medium facing surface that  
faces toward a rotating recording medium; an air inflow end;  
5 and an air outflow end; and

a thin-film magnetic head element disposed near the air  
outflow end and near the medium facing surface of the slider  
main body, wherein:

the medium facing surface has: a first part closer to the  
10 air outflow end; a second part closer to the air inflow end;  
and a border part between the first part and the second part,  
the second part being slanted against the first part so that  
the entire medium facing surface has a convex shape bent at  
the border part.

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2. A slider of a thin-film magnetic head according to  
claim 1, wherein the second part slants against a surface of  
the recording medium so that the air inflow end gets farther  
from the recording medium than the border part does, while the  
20 recording medium is rotating.

3. A slider of a thin-film magnetic head according to  
claim 2, wherein the second part and the surface of the recording  
medium form an angle of no greater than  $30^{\circ}$  while the recording  
25 medium is rotating.

4. A slider of a thin-film magnetic head according to claim 1, wherein the slider main body is in contact with a surface of the recording medium while the recording medium is at rest, and stays away from the surface of the recording medium while the recording medium is rotating.

5. A slider of a thin-film magnetic head according to claim 4, wherein, when the slider main body comes into contact with the surface of the recording medium, the border part is the first to make contact with the surface of the recording medium.

6. A slider of a thin-film magnetic head according to claim 4, wherein, when the slider main body takes off from the surface of the recording medium, the border part is the last to depart from the surface of the recording medium.

7. A slider of a thin-film magnetic head according to claim 1, wherein the medium facing surface has a concavity/convexity for controlling orientation of the slider main body during the rotation of the recording medium.

8. A slider of a thin-film magnetic head according to claim 1, wherein, regardless of whether the recording medium is rotating or at rest, the slider main body is in contact with the surface of the recording medium at the border part, and

the first part and the second part slant against the surface of the recording medium so that the air outflow end and the air inflow end are off the recording medium.

5           9. A slider of a thin-film magnetic head according to claim 1, wherein the first part and the second part form an angle of no greater than 30°.

10           10. A slider of a thin-film magnetic head according to claim 1, wherein the medium facing surface has a recess formed in a region including the border part.

15           11. A slider of a thin-film magnetic head according to claim 1, wherein the slider main body includes: a substrate portion that has a surface facing toward the recording medium and makes a base of the thin-film magnetic head element; and an insulating portion that has a surface facing toward the recording medium and surrounds the thin-film magnetic head element.

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12. A slider of a thin-film magnetic head according to claim 11, wherein the medium facing surface has a recess formed in a region including the border part, and the recess is formed in the substrate portion.

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13. A slider of a thin-film magnetic head according to

claim 11, wherein the slider main body further includes a protection layer that covers the surfaces of the substrate portion and the insulating portion facing toward the recording medium.

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14. A slider of a thin-film magnetic head according to claim 13, wherein the medium facing surface has a recess formed in a region including the border part, and the recess is formed in the protection layer.

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15. A slider of a thin-film magnetic head according to claim 13, wherein the protection layer is made of alumina or diamond-like carbon.

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16. A slider of a thin-film magnetic head according to claim 11, wherein the surface of the insulating portion facing toward the recording medium is located farther from the recording medium than a part of the surface of the substrate portion facing toward the recording medium is, the part being adjacent to the surface of the insulating portion facing toward the recording medium.

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17. A slider of a thin-film magnetic head according to claim 16, wherein the slider main body is in contact with a surface of the recording medium regardless of whether the recording medium is rotating or at rest, and a portion of the

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first part, the portion belonging to the substrate portion, is in contact with the surface of the recording medium at least while the recording medium is rotating.

- 5           18. A slider of a thin-film magnetic head according to claim 11, wherein the length of a portion of the first part in the direction of air passage, the portion belonging to the substrate portion, is equal to or less than 50% the length of the entire substrate portion in the direction of air passage.

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19. A method of manufacturing a slider of a thin-film magnetic head, the slider comprising: a slider main body having a medium facing surface that faces toward a rotating recording medium, an air inflow end, and an air outflow end; and a  
15 thin-film magnetic head element disposed near the air outflow end and near the medium facing surface of the slider main body, wherein: the medium facing surface has: a first part closer to the air outflow end; a second part closer to the air inflow end; and a border part between the first part and the second  
20 part, the second part being slanted against the first part so that the entire medium facing surface has a convex shape bent at the border part, the method comprising the steps of:

- forming a slider material containing a portion to be the slider main body and the thin-film magnetic head element, and  
25           processing the slider material so as to form the medium facing surface having the first part, the second part and the

border part, and the air inflow end and the air outflow end on the slider material.

20. A method of manufacturing a slider of a thin-film  
5 magnetic head according to claim 19, wherein the step of processing the slider material includes the steps of:

lapping the slider material to form the first part; and  
lapping the slider material to form the second part.

10 21. A method of manufacturing a slider of a thin-film magnetic head according to claim 19, wherein the step of processing the slider material includes the step of forming, on the medium facing surface, a concavity/convexity for controlling orientation of the slider main body during the  
15 rotation of the recording medium.

22. A method of manufacturing a slider of a thin-film magnetic head according to claim 19, wherein the first part and the second part form an angle of no greater than 30°.

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23. A method of manufacturing a slider of a thin-film magnetic head according to claim 19, wherein the step of processing the slider material includes the step of forming a recess in the medium facing surface at a region including  
25 the border part.

24. A method of manufacturing a slider of a thin-film magnetic head according to claim 19, wherein the portion to be the slider main body includes: a substrate portion that has a surface facing toward the recording medium and makes a base of the thin-film magnetic head element; and an insulating portion that has a surface facing toward the recording medium and surrounds the thin-film magnetic head element.

25. A method of manufacturing a slider of a thin-film magnetic head according to claim 24, wherein the step of processing the slider material includes the step of forming a recess in the medium facing surface at a region including the border part by etching the substrate portion.

26. A method of manufacturing a slider of a thin-film magnetic head according to claim 24, wherein the step of processing the slider material includes the step of forming a protection layer for covering the surfaces of the substrate portion and the insulating portion facing toward the recording medium.

27. A method of manufacturing a slider of a thin-film magnetic head according to claim 26, wherein the step of processing the slider material includes the step of forming a recess in the medium facing surface at a region including the border part by etching the protection layer.

28. A method of manufacturing a slider of a thin-film magnetic head according to claim 26, wherein the protection layer is made of alumina or diamond-like carbon.

5           29. A method of manufacturing a slider of a thin-film magnetic head according to claim 24, wherein the surface of the insulating portion facing toward the recording medium is located farther from the recording medium than a part of the surface of the substrate portion facing toward the recording  
10 medium is, the part being adjacent to the surface of the insulating portion facing toward the recording medium.

          30. A method of manufacturing a slider of a thin-film magnetic head according to claim 24, wherein the length of a  
15 portion of the first part in the direction of air passage, the portion belonging to the substrate portion, is equal to or less than 50% the length of the entire substrate portion in the direction of air passage.